

In re Patent Application of:
POMET ET AL.
Serial No. **09/727,300**
Filing Date: **November 30, 2000**

REMARKS

Applicants would like to thank the Examiner for the thorough examination of the present application. The title has been changed to be more descriptive as requested by the Examiner. The arguments supporting patentability of the claims are presented in detail below.

I. The Claims Are Patentable

The Examiner rejected independent Claims 12, 25, 34 and 42 over the Kowalski patent. The present invention, as recited in independent Claim 12, for example, is directed to an electronic device comprising a central processing unit, at least one peripheral device, and a data bus connected between the at least one peripheral device and the central processing unit through which data travels at a rate of a clock signal.

The electronic device further comprises a transmission line connected between the at least one peripheral device and the central processing unit for providing a random signal thereto that is synchronous with the clock signal. The central processing unit and the at least one peripheral device each comprises a data encryption/decryption cell connected to the data bus and to the transmission line for generating a same current secret key at each clock cycle based upon the random signal.

The data encryption/decryption cell in the central processing unit and in the at least one peripheral device advantageously makes the electronic device more secure by making it more difficult to determine the data elements that travel through the data bus when an intruder observes current consumption of the electronic device.

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Independent device Claim 25 is similar to independent device Claim 12 except the at least one peripheral device has been changed to at least one memory device. Independent device Claim 34 is similar to independent device Claim 12 except this claim is directed to a smart card. Independent method Claim 42 is similar to independent device Claim 12.

Referring now to the Kowalski patent, the Examiner has taken the position that the claimed invention is disclosed in columns 1 and 2 of the Kowalski patent. The text in columns 1 and 2 corresponds to the block diagram of a microcircuit **1** for a smart card and a terminal **10** that receives the smart card, as illustrated in FIG. 1. More particularly, FIG. 1 discloses a wired-logic microcircuit **1** comprising a serial memory **2** (i.e., a peripheral device), an authentication circuit **3** and a sequential logic circuit **4** which controls the functioning of the various elements by a clock signal **H** provided by the terminal **10**. The authentication circuit **3** has a serial input **3-1** for receiving an input code and a serial output **3-2** for producing an authentication code **CA**.

The Applicants respectfully submit that the Examiner has mischaracterized the Kowalski patent. First, column 1 in the Kowalski patent discloses that there are "microprocessor" cards and "wired-logic" cards. The microcircuit **1** illustrated in FIG. 1 is a wired-logic card. The "wired-logic" card **1** does not include a central processing unit as in the claimed invention. Terminal **10** includes a central processing unit **11**, but this terminal is separate from the microcircuit **1**. Since

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the microcircuit **1** fails to disclose a central processing unit, it also fails to disclose a central processing unit comprising a data encryption/decryption cell connected to the data bus, as in the claimed invention.

Moreover, the data encryption/decryption cell in the microcircuit **1** is separate from the memory **2**. The data encryption/decryption cell in Kowalski is made up of the logic circuit **4** and the authentication circuit **3** - which are separate from the memory **2**. In sharp contrast, the claimed invention recites that the at least one peripheral device comprises a data encryption/ decryption cell as well as a central processing unit comprising a data encryption/decryption cell.

In addition, the Examiner correctly notes that the terminal **10** provides a random signal to the microcircuit **1**. However, Kowalski fails to disclose that the random signal is synchronous with the clock signal of the microcircuit **1** so that a same current secret key is generated at each clock cycle based upon the random signal. Instead, the terminal **10** calculates a code **CA'**, and in parallel the authentication circuit **3** generates a code **CA**. The terminal **10** then compares the two codes. If the codes are different then the card is not authentic and is refused by the terminal **10**. In sharp contrast, the claimed invention recites that the random signal provided via the transmission line to the at least one peripheral device and to the central processing unit is synchronous with the clock signal so that a same current secret key is generated (by the central processing unit and the peripheral device) at each clock cycle based upon the random signal.

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The Examiner has also characterized the single I/O line in Kowalski as a transmission line and as a data bus. In sharp contrast, the claimed invention recites that the data encryption/decryption cells are connected to the data bus as well as to the transmission line.


Accordingly, it is submitted that independent Claim 12 is patentable over Kowalski. Independent Claims 25, 34 and 42 are similar to independent Claim 12. It is submitted that these independent claims are also patentable over Kowalski. In view of the patentability of the independent Claims 12, 25, 34 and 42, it is submitted that the dependent claims, which include yet further distinguishing features of the invention are also patentable. These dependent claims need no further discussion herein.

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CONCLUSION

In view of the arguments provided herein, it is submitted that all the claims are patentable. Accordingly, a Notice of Allowance is requested in due course. Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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